Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – May 2016

Time: Three Hours | Max. Marks: 60 Marks

RADIOTHERAPY (Part– I – A)
FUNDAMENTAL OF PHYSICS (RS - 2)
Q.P. CODE: 1356

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Explain details about transformer.
2. Basic interactions between X-ray and matter
3. Explain Radioactivity and Radioactive disintegration law.

SHORT ESSAYS (Answer any FIVE) 5 x 5 = 25 Marks

4. Explain self-induction and mutual induction.
5. Factors effecting quality of X ray
6. Explain about Radioactive equilibrium.
7. Explain absorbed dose and KERMA and compare with graph.
8. Types of transformer
9. What is a capacitor? Explain about construction and factors affecting capacitance.
10. Explain conduction, insulator and semiconductors.

SHORT ANSWERS (Answer any FIVE) 5 x 3 = 15 Marks

11. Half life
12. Effective dose and unit
13. Ionization
14. Thermionic emission
15. Exposure and unit
16. LET and RBE
17. Radioactivity and its units

Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – May 2016

Time: 3 Hours | Max. Marks: 30 Marks

Radiation Biology, Applied Anatomy and Pathology

Q.P. Code : 1357

Your answers should be specific to the questions asked. Draw neat labeled diagrams wherever necessary
(Note : Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any One) 1 x 10 = 10 Marks

1. What is occupational cancer? List a few occupational cancers, the site of tumor and the agents causing cancer.
2. Name the 5 R's of Radiotherapy. Discuss them in details.

SHORT ESSAYS (Answer any Two) 2 x 5 = 10 Marks

3. What is TDF concept and its role in Radiotherapy practice?
4. Discuss the Etiology and pathology of bladder carcinoma.
5. Explain the radiation safety procedure to be observed when treating a patient with HDR Brachytherapy.

SHORT ANSWERS (Answer any Five) 5 x 2 = 10 Marks

6. Histologic classification of Neoplasia
7. Cell survival Curve
8. Hypofractionation
9. Precancerous lesion
10. Gastrointestinal Syndrome after radiation exposure
11. Oncogenes

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – May 2016

Time: 3 Hours Max. Marks: 30 Marks

Principles of Radiotherapy

Q.P. Code: 1358

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary

(Note: Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any One) 1 x 10 = 10 Marks

1. Discuss IMRT in detail: including patient preparation, planning and verification.
2. Complications expected during external beam therapy of Ca Base of tongue. Is mouth bite a useful treatment accessory in this case?

SHORT ESSAYS (Answer any Two) 2 x 5 = 10 Marks

3. Brachytherapy for Ca Oesophagus
4. Time, dose and fractionation
5. Discuss the various physical effects of neoplasia on the body.

SHORT ANSWERS (Answer any Five) 5 x 2 = 10 Marks

6. Radiation Cataract
7. Effect of radiation on salivary glands
8. Rectal complications after RT for Ca Cervix
9. Radiation Pneumonitis
10. Serial organs
11. Metastasis

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – AUG/SEP 2016

Time: Three Hours | Max. Marks: 60 Marks

RADIOTHERAPY (Part– I – A)
FUNDAMENTAL OF PHYSICS (RS - 2)
Q.P. CODE: 1356

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Explain the phenomenon of Radioactivity and radioactive equilibrium.
2. Explain in detail the construction and working of X-Ray tube.
3. Explain basic interaction of X rays with matter.

SHORT ESSAYS (Answer any FIVE) 5 x 5 = 25 Marks

4. Fluorescence and Phosphorescence
5. Radioactive nuclides in medicine
6. Half wave rectifier
7. Specific Gamma ray emission
8. Electromagnetic induction
9. Radioactive displacement law
10. AC transformer

SHORT ANSWERS (Answer any FIVE) 5 x 3 = 15 Marks

11. Absorbed Dose
12. Coulomb's law and Ohm's law
13. Conductors, Insulators and Semiconductors
14. Curie and Becquerel
15. Wavelength and frequency of Electromagnetic waves
16. Continuous and characteristic spectrum
17. Rem and Sievert

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – SEP-2016

Time: 3 Hours | Max. Marks: 30 Marks

Radiation Biology, Applied Anatomy and Pathology

Q.P. Code : 1357

Your answers should be specific to the questions asked. Draw neat labeled diagrams wherever necessary

(Note : Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any One) 1 x 10 = 10 Marks

1. Describe in detail anatomy of Breast. Explain the pathology and tumor spread of cancer Breast.
2. Describe in detail the anatomy of Cervix. Explain in detail the pathology and tumor spread of cancer cervix.

SHORT ESSAYS (Answer any Two) 2 x 5 = 10 Marks

3. Explain in detail TNM staging.
4. Describe 4 R's of radiobiology.
5. Describe cell cycle and explain in detail effect of radiation on cell cycle.

SHORT ANSWERS (Answer any Five) 5 x 2 = 10 Marks

6. Radiation carcinogenesis
7. Acute effects of total body radiation
8. Radiation protection
9. Hyper fractionation
10. Differences between benign and malignant tumor
11. LET and RBE

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – SEP-2016

Time: 3 Hours Max. Marks: 30 Marks

Principles of Radiotherapy

Q.P. Code: 1358

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary

(Note: Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any One) 1 x 10 = 10 Marks

1. What is Multidisciplinary approach and how is breast cancer managed by multidisciplinary team?
2. Write about Rationale, preparation of patient and techniques in External Beam Radiotherapy for carcinoma endometrium.

SHORT ESSAYS (Answer any Two) 2 x 5 = 10 Marks

3. Late effects of Radiotherapy in pediatric patient
4. How do you prevent spinal cord over dosage in nasopharyngeal cancer radiotherapy?
5. Briefly define simulation for soft tissue sarcoma of leg.

SHORT ANSWERS (Answer any Five) 5 x 2 = 10 Marks

6. Mucositis management
7. Radiation Emesis
8. CHART
9. Intraluminal Brachytherapy
10. Care taken in pediatric patient
11. Cachexia

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